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THE ELEMENTARY SCHOOL TEACHER

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DEDICATION OF THE SCHOOL OF EDUCATION.[1]

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THE building of a great university is one of the noblest tasks ever committed to the hand of man. To watch its roots strike ever deeper into the nourishing soil of favoring public opinion, and to watch its results spreading over an ever widening area, is an inspiration; but to participate in the building of such a university gives a supreme satisfaction, perhaps appreciated only by those who have personally felt it.

In the Middle Age it was the great cathedral which most fully embodied and symbolized the ideals and the aspirations of civilized man. All over Europe they were rising for centuries, those great, solemn, stately piles, whose pointed windows and arches and towering spires marked the aspirations of man for the things of heaven, and stood almost as if they might draw down from the unseen depths beyond the clouds something of the divine inspiration that lingered there. Into the building of those great cathedrals were poured the wealth of prince and potentate, and the labor of pauper and of peasant. They were the embodiment of the faith of a Christian people for centuries, and, representing as they did the dominating ideals of that faith, they pictured out in permanent and material form the aspirations of those people.

In our own time the university has succeeded to the place once held by the cathedral as the best embodiment of the uplifting forces of the modern time. We still find place for the cathedral,

[1] The oration delivered at the dedication of Emmons Blaine Hall, School of Education, University of Chicago, May 14, 1904.

but we place by its side, as more distinctly our own and as more distinctly representative of everything that has entered into our modern life, the great university as it is found in every nation of the civilized world.

When the history of the last century comes to be written, it will be seen that, after the fall of Napoleon and the rise of the democratic movement in Europe, the great impulse that was given to the founding and development of universities represented the very best thought and the best and highest ideals of the time. Those universities, striking root in a democracy, have become particularly popular institutions. They have put off one by one the marks of privilege and of exclusiveness, and under the sheltering care of the modern democratic state they have become the pride of a democratic people. There are gathered together those devoted bands of scholars, men and women who are giving their lives to the pursuit of truth in its every form, and who are bringing together for the service of mankind the results of their search in every slightest department of letters, of science, or of art.

From the very beginning the essential element in the university has been no plan of organization, no great scheme or provision of endowment, no magnificent pile of stately buildings; the essential thing has been the presence of the great, inspiring, devoted teacher, who could draw to himself those who hungered and thirsted to learn. So it was with those who gathered at the feet of the Arab physicians about the healing springs of Salerno; so it was when the students of civic law flocked to Bologna to learn from Alericus; so it was when the thousands of students crowded the hilltops that now are Paris to hearken to the eloquent dissertations of William de Champeaux and Abelard; so it was in the quieter cloisters on the banks of the Isis and the Thames. There is, and there can be, no university built out of stone. There is, and there can be, no university made of wealth. The university is a thing of the spirit, and that spirit will surely find in the gratitude of a democratic people the body it needs for its existence.

As the university developed and touched democratic life at ever more points, the old seven liberal arts began to break up;

not that they were too many, but that they were too few to keep pace with the new-found knowledges of man, and that older classification no longer sufficed to give us the material out of which culture and character could be had and made. One science pressed hard upon another, one language came on the train speedily of its predecessor; and before long not seven liberal arts, but seventy times seven, were included in the program of studies of the great universities.

Why was it, do you suppose, that it took the university so long to study itself? Why did century after century go past before it turned its eye inward and made its own process a subject of analysis, of investigation? I do not know, unless it be that introspection of a scholarly and analytic kind comes late in the history of human activities. It is true of man himself that he was first absorbed in the study of the external world. He was oppressed by it, overcome with it, stupefied at it. He peopled it with gods and demons because the forces were impossible for him to understand: and really it was only when Socrates came that the eye of man was turned in, and man's own mental processes, his own power of knowledge, his own intellectual conquests, were themselves studied and related to this vast content that lay without. Whatever reason there may be for introspection coming late in the history of the race, there is, I suppose, substantially the same reason for introspection coming late in the history of universities. It took a long time to turn the university eye in upon its own process. And when it first turned the eye in, as it began to do in the eighteenth century, under the guidance of professors of philosophy in Germany, it was absorbed in theoretical discussions peculiar to the stage of advancement in which the pupil found himself when he came within university quarters.

It took a still longer time for the university to grasp the fundamental truth, now so simple and so axiomatic, that the educational process is one, and that no human power can break it into parts. You may deal with it in part, you may cut it up for theoretical purposes into divisions, but no man can draw the point or line at which the division takes place. We have agreed upon certain classifications for purposes of practical administra-

tion, and it is well that we should. That is convenient, it is helpful. But the moment we attach any great metaphysical reality to those elements of classification, we have departed from the one fundamental truth in all human life and human nature, viz., that growth and development are continuous and unending.

Finally, under the guidance of the psychologists this time, not the philosophers as at first, the university came to see that this entire process was one, and that the system of education from birth to adulthood was as important for the university as any other subject that it had taken for its own. Then it left off sneering at the kindergarten and the elementary school, and it embraced them in its program as elements of human life to be studied and dealt with in the light of their fundamental and far-reaching importance.

We have been slow, no doubt, to see all this. We have been slow to be catholic about education. We have been slow to be scientific. But thanks be, in these great universities of America the fight for catholicity and the fight for scientific study of education has been won. There is no self-respecting university in this land today that would attempt to repeat the statements about education as a process and an art and a philosophy that were common twenty-five years ago; and it is a matter of supreme significance, it is a matter of the supremest significance, that we are met today formally to dedicate these magnificent buildings that are to stand, let us hope, so long as stone will endure, as a monument to the catholic educational ideals of the University of Chicago and as a monument to the far-sighted benefaction of those who have made them possible.

Now, what is it that we are to do? We are to do more, members of the University, than merely to train teachers. The training of teachers is of supreme importance, to be sure; no one would dream of denying that. But beyond training teachers we are to study education itself. We are to remember that we are in the presence, not of something new, but of something almost eternally old that we have neglected to study and observe. Away down for twenty-five hundred years there have been the voices of seers and philosophers crying in the wilderness, urging man-

kind to take some interest in this great human institution. But only now, only in our own time, are we ready in our universities — ready philosophically, ready psychologically, ready perhaps physiologically — to take up the serious and determined study of an educational process itself. And then we are going to find how closely these bind our universities together by a study which relates itself with almost, if not quite, everything else they do.

In my judgment, we are going consistently to approach education on these converging lines. We are going to approach it along the line of physiological inquiry, along the line of psychological inquiry, and along the line of social or sociological inquiry. We are going to make ourselves familiar with the laws governing the growth and development of the human body. We are going to know the relation, more intimately than we do now, between the physiological and the earlier and slighter pathological states. We are going to lay continued emphasis upon the physical basis of education. And we are going to emphasize year by year health as the corner-stone of the educational structure.

We are going to approach education along the psychological line, and there we find much already done for us in certain fields. The science of psychology has proceeded by leaps and bounds since Fechner's time. Immense masses of material are at our disposal regarding the adult man, but we are still strangely unfamiliar with the growing mind and with some of the comparative mental stages which must enter into our comprehension of the educational process. We are going to deal more and more in the university with the study of the genetic and comparative aspects of psychology. We are going to ask how it is that these powers of ours take their rise, what contributes to their first manifestations, how do those manifestations alter in quantity as they progress. Do they reach a maximum of perfection and then fall away, or are they able to maintain themselves upon a common level of ability? Then, in the light of that information, we are going to ask searching questions about the food that the growing mind should have, and when and how that food should be applied. You say much of this has been done. Yes, much has been done. The trouble with it is that it has not been brought together, it has

not been correlated, it has not been tested; and we are still without, let me remind you, any such exposition of the scientific process of education as we have of chemistry or physics or zoölogy. We are without any such scientific exposition of the principles of education as we have of the scientific principles of the law. Not that the material does not exist; but we have been slow in mastering it, slow in organizing it, slower still in stating it in tones which carry conviction because they are consented to by those who have made the test under scientific auspices.

Then we are going to approach this great field of study along the sociological side. This is one of the fields now most actively cultivated. It was cut off for years by false philosophy, which regarded the individual as something complete in himself. We are now happily convinced of the truth of the philosophy that the individual can only complete himself as he completes himself in and through the social whole of which he is a part. We have been having that dinned into our ears by psychologists and sociologists until we have come to see its practical importance. We have seized hold of it, not only as a theoretical principle thoroughly to be believed in, but as a working principle of government and education and morals.

As we proceed along these three converging lines, we are then going to relate all this subject-matter to the content of education. We are going to see what the scientific test of today has to say to the experience of the ages as to the material of education. We are going to ask what it has, if anything, that we have been passing by; what it has, if anything, that we have been putting in that should not be there; what it has, if anything, upon which we have been laying too little or too much emphasis or importance. And out of all this, as the years go on, we are going to come to a reasonable doctrine in which we can believe because it has passed through the crucible of science, because it has been tested by philosophic principle, and given to us as something co-ordinated that we can take as a working hypothesis.

It is extraordinary how long we have waited for the settlement of some fundamental questions of principles, while the nations of the earth have been spending treasure lavishly in the pursuit of

the ideal, the terms of which they have disputed; but there are some things which human instinct is very sure about, even when human reason lags behind.

I have searched in vain through the history of philosophy and the history of education for any educational theory put forward by a responsible authority, that was based either upon necessitarianism or pessimism. I have been unable to find any philosopher who, whatever his theoretical principles have been, has not, when he spoke of education, assumed freely an optimistic view of the world. Now, if we are believers, as I take it we are, in the fundamental principles of a philosophy of evolution — evolution spiritual as well as evolution material — then we are at bottom optimists. We do not believe, we cannot believe, that the world is perfect, or that the world in its present state is the best possible world; but that it is a good world progressing toward a better end is the fundamental assumption of every schoolhouse in the land.

No community would dream of wasting its treasure upon training for something that was to be continually worse. The very hopelessness of the outlook would paralyze our endeavors materially, intellectually, and morally.

And so it is with freedom. So it is with freedom — the rational use of liberty — the one great end of individual existence, the one great end of the existence of the state. We have been taught formulas, we have learned the sentences and the phrases from the philosophers of the eighteenth century; but do they really know what it is to be free — not only free from the thralldom of kings, tyrants, and despots, but free from the thralldom of low and petty ideals, from mean and selfish and narrow motives, from ungenerous attitudes toward our fellow-men?

The one great desire of every university is the search for truth — truth in every form and every phase, truth as revealed in the annals of Greece, Rome, and the Orient; truth as revealed in the physical world in all its phases; truth as revealed in human history, in the study of human nature. Why are we anxious for truth? What can truth do for us? Truth shall make us free. We are in search of truth because we are in search of freedom;

and we are in search of truth in educational theory and practice because we are in search of free men and women — really free, liberated from their thralldom, be it external or internal, and permitted to grow as God meant that human beings should grow.

Something over four years ago it was my fortune to be asked to a gathering in a little town on the shores of Massachusetts Bay. I went down into a company of a thousand people in the little old stone church at Quincy, and I listened to Frank Parker tell the story of the regeneration of the Quincy schools. Simply as a child, that great man stood out before the men and women who were once children at his feet, and told them, without a word of boasting, how twenty-five years before he had come to that town and tried to set them free. It was one of the most beautiful, one of the most precious, memories that anyone might have — to hear from the lips of a great spirit the simple recital of the beginnings of a great achievement for humanity.

Quincy is a little town with few schools, few teachers, a handful of pupils; but out from Quincy went a spirit which has worked to use every moment to regenerate the elementary schools of this country. Why? Because a great spirit, with his eye fixed on freedom and with a consuming zeal in his heart for freedom, set himself the task.

Here you knew and loved him well. Over in yonder school he served this community and his country for the most active years of his life. Tender as a child in dealing with children, he was firm as a rock of adamant when faced with a question of right or wrong in education. I have seen him storm and rage when confronted by the forces of ignorance and corruption who were trying to undo his work and to tear down his ideals, and to stand between those helpless children and freedom. I have seen him stand in their presence and draw them to a consciousness of themselves, and with that to a consciousness of what he meant, by the simplest, most artless, and most affecting teaching processes that I have ever seen.

That great spirit has gone to his eternal rest across the silent river, but it must be that that spirit is with us here today. He knows, and this University will always know, what it is that has

happened that has given such significance to this event. He knows, and this University will always gladly remember, what part he played in the beginnings of these great things. And it is fitting, as we look hopefully toward the future, as we dedicate a great building which is to serve this nation long after those within the sound of my voice today are gone — it is fitting that we should remember that his spirit, like all spirit, cannot and does not die. He went through life doing the best he could to draw things as he saw them for "the God of things as they are." And now when the veil is rolled away and he himself sees things as they are, the companionship, the inspiration, and the beneficence of that great spirit are with this company and with this splendid School of Education we so gladly and so hopefully dedicate.

DEDICATION OF THE SCHOOL OF EDUCATION.[1]

MRS. EMMONS BLAINE,
CHICAGO, ILL.

WHEN the dedication of the buildings of the School of Education was planned and I was invited to make some utterance, I declined, deeming the honor thus tendered to me one for which I was hardly fitted.

It has occurred to me, however, that there is one word I should like to say about myself, on this occasion, which perhaps no one else could say. And thus it comes about that I thrust myself into the place where I am permitted to stand. This has its merit, however, in being more truly illustrative of my connection with the School than otherwise it would be.

What I should like to say is for the sake of clearness and correct understanding of fact, in the summing up of the schools that have been for the school that may be — that in the giving of these first buildings of the School of Education to their work of usefulness every stone may be in its own place and no other.

The term "founder of the school" has been used in my hearing as describing my connection with some phases of the School's history. I should like to correct that, if I might be permitted. I did not found it — I simply found it; and those who find this School ever in some measure belong to it.

The founders, I take it, were the men who set in motion the educational forces which here meet to flow in one mighty stream: Francis W. Parker, who saw the ideal, and out of his own soul set on foot the effort to realize it, with whatever means were at hand — his own unbounded faith in the end and his clear vision of it, though afar off, being his great reservoir of power whose depth was never reached; John Dewey, who, likewise seeking his ideal, started his stream of effort, which stream still winds on before us, so that we may happily not pass upon its entirety, but

[1] Address delivered at the dedication of Emmons Blaine Hall, School of Education, University of Chicago, May 14, 1904.

only predict its greatness; Henry H. Belfield, who for years has fought the fight for the practical training of youth, to the uplifting and strengthening of education in our whole city; and all the others whose initiating work is here represented.

Finder is the only claim that I can make to a status in this school. But by virtue of that — and to just the extent found — owner, possessor; and by necessity of that, worker — though among the workers who wrought to this result I was the least.

But on these claims I rest. I beg exemption from any status as donor, for I count it the least; and would not be ranked by the sous given, but by the wealth received.

Happily in this School one is not marked by figures — unless it has departed from the old way; and the dollars were the incidents, where they could be found but the accident, of the work.

Since the joy of creating it cannot be mine, I ask no better place than a Finder of this School, or rather of one of its forerunners, the old Normal School, which still exists, through its transmigrations of soul, in the School of Education.

To be a finder with satisfaction one must be first a seeker; and a little searching for relative values and proportions in this confused civilization of ours makes a good preparation for discovery.

And what was the thing one discovered in the scheme of the old Normal School? Was it a method of teaching? A system of instruction? Not to me, primarily. It was a scheme of life. It was the human picture — so confused about us, so distorted — beginning to take shape, beginning to find its proportions and values, beginning to resolve itself into harmony.

As an artist, in forecasting his work, sketches in his mind or on his canvas the anatomy of his thought, giving each element its true proportion, so we must do in our plan of education; else the picture of life we are trying to draw from each individual, like the painted one, would be a jumbled mass.

And as in the one case, this work must be done in the beginning, so, in the other, it is the foundation work that must be so laid; else the whole will be but a patchwork. And if important and recognized in every work we know, how much more impor-

tant in that subtle, delicate, and vital work — the construction of a conception of life in the growing mind — is the settling of values and proportions?

And in this process the first step is the selection of the central theme, the decision as to the next in importance, and so on to the last detail of finish. But without the anatomy all loses worth; and the last detail ranks with the fundamental drawing.

It was this work — it always seemed to me reconstructive indeed — that Colonel Parker had so well under way. He had chosen his central theme for the work of his human pictures — and it was character.

And therein lay his greatness — in his unerring vision of this as the prime principle of education; and then in his unswerving sureness in holding to it among all the claims and counter-demands of an age that does not recognize this principle in education, and amid all the perplexities of overlaid custom built up with prejudice. He struck through all to the root, and held all to the bar of his prime demand; and what did not hold there was left aside, while from the foundation was being built, bit by bit, the harmonious whole, consonant with this central essential principle.

Some of the world criticised that work as caring nothing for learning. One who knows cannot but feel that they were the unseeing ones. One might as well say that because Michael Angelo's lifetime did not suffice to complete all his work fully, and he left us those great figures still in part unchiseled, he cared naught for finish. One might as well, while gazing at their great symmetry and proportion, refuse to see the intention, and, not even observing the Moses, denounce all as crude.

This is the spirit of carping criticism which, in applying a foot-rule to measure great works, loses sense of the whole, and, in omitting the *would-be* from the *is*, cuts the ideal out of the actual and loses the essence of some of life's best gifts to humanity.

It was not that Colonel Parker loved learning less, but character more. Every brain that worked for the children would have had the training of a logician, the stores of the savant, if he could

have willed it so. He longed for these himself and only for that purpose — that he might give them. Every hand that taught would have been the hand of an expert.

But no savant, no expert, by virtue of that claim, could with his consent injure the soul of a child. He with the tongues of men and angels, he with the informations of the encyclopædias, would each have had to stand and deliver his claim to the right to mold the nature of the child with his tools, however wondrous they might be.

It was not that he undervalued the finest instrument, but that the mind should wield the instrument, not the instrument the mind. It was not that he underrated a complete equipment, but that he who possessed such must still show what he would do with it to that little child. And all who know, know how, when that was shown and seen, he longed for the full measure of learning to complete the whole; and to find such teachers, and so to train them, was his life's ideal.

In a choice clear and simple — shall it be character or shall it be learning that we give a child? — no one would hesitate. So much the Christian light that has penetrated has done for us.

But while we utter the choice, and feel safe in the words of it, the subtle and deadly temptations that assail the life of education come in a thousand forms; deadly, because, while we describe character in terms of action, these strike at the root of all, being selfish; subtle, because hidden in many difficulties.

The edifice of attainment being once constructed, and the perpetual question from the first being not, "What can you do with what you possess?" but, "How much more have you gained than your neighbor?" — ambition takes hold; and to ambition is added arrogance, when the top is reached. Then the last state is worse than the first; and some saving grace must come in to undo all.

Then comes the problem unmet as a rule. Is the educational institution to take note of the individual as a human being or only as a machine? Can it be that the affirmative answer is to be given to the latter, when the enormous weight of the influence of

the schools on the individual from the first to the last in time and value is considered?

These are the questions that are at stake for the world in our education; and these are the thoughts that make one rejoice that the elements that have produced the School of Education have joined hands with the University of Chicago. And though the School must lose its valued Director, it still has the upholding strength of the President of the University and of the University, to enable it to help to demonstrate the possibilities from the kindergarten through the academic life, and to filter out strength into the nation.

These visions make us glad that the truths sought in these schools may be still sought and found in the University, where the search may ascend into the clear light of learning, in the spirit that is free of selfishness and pride; where learning may be seen to be but new outposts into the vast unknown; and where, when we earthbound creatures dig a little deeper or pierce a little higher, it will not be in the spirit of a race to get ahead, but in the comradeship of an advancing army.

And so shall be found the force making for righteousness, for freedom, for community brotherhood, which our country and the world have need of.

In conclusion, I would say one word for Emmons Blaine.

The President and the University of Chicago have graciously proposed to honor my connection with the School of Education by naming one of its buildings for him.

In that fact I find great honor; and for him and for myself I wish to thank the University and its President. This University just came within his earthly ken, and his mind seized upon its great possibilities at once with all the interest and eagerness of his nature; and it would have been one of his deepest satisfactions to do for it in his own great way. I thank the University that his name may rest upon a place that is the home of so much that he would love.

THE FINE ARTS.[1]

ERNEST F. FENOLLOSA,
NEW YORK, N. Y.

It was about a year ago that Professor Dewey and I were discussing the question whether it is possible to demonstrate that the order of progress in getting the power for an artistic creation in the mind of a single individual — and therefore the psychological order of development of the artist's powers — is practically identical with the historical order of the development of the art powers in the human race. If that could be shown — that the very steps in which in our education today we are training ourselves to get power, mastery, more and more creative ability, are practically identical with the order in which the various races of men have attained that power — we then should get the broadest possible inductive basis for something like a scientific view of education.

I know, of course, that it requires a great deal of material, so that I can merely hint at the line of argument; but what I wish to show is that there is such a parallelism. Of course, when I speak of historical order I do not mean only one order, but that among the several artistic races which have had centuries in which to develop their powers there is practically a unity — among the Europeans in their development from the Middle Age, or the Chinese or Japanese in the order of developing their own powers. I think we shall find substantially the same steps; and just the most general aspect of that is what I am going to try to show, not especially of technical problems of just what we should do, or the application of problems to any school, but a general theoretical foundation, if it can be established, which gives us a valuable starting-point in all special lines of education.

It has been held by some people in America, and I think it is held by the majority of the public, that the real root of art

[1] Address, illustrated by stereopticon views, delivered at the dedication of the School of Education, May, 1904, before the Conference on "The Arts."

development and of art power lies in representation. That was the old view. That is the old orthodox view. It is not the view of the newer school of educators in art in America, and of course and naturally not my view. But it is the general view that it is the problem of representation to present facts to the eye, which is the key to the development of art. All the histories of art that exist assert that it is the development of more and more perspective, more and more elements of realistic impression, that constitutes the arts in our time. What I wish to say is that that is not true in the history of human art.

In the art of primitive ages, among the North American Indians and among the Polynesians, we find the first attempt at symbolic representation, which is the sort of drawing done by our little children of six and seven years today. This is in the historical order of representation generally. Out of this art itself grows. Here we get what you might call typical representation of the beginning of art among all peoples. This is an Eskimo drawing. These are figures of men carrying things in their hands, figures sitting about, etc. It is this sort of drawing that we find upon stone and leather, done by the North American Indians, Polynesians, and South Africans. The question I raise is whether from this as a starting-point of representation we can go on, whether we can go on in a steady line from this beginning to the masterpieces of Raphael. Is there a definite line of development out of this? Of course, I have to make my statements rather dogmatic in order to cover the ground in the time allowed. What this leads to, in fact, is not art, but literature. It is literature because, although of course it is symbolically a statement of fact, it is done through the very elements out of which our hieroglyphic languages have developed. For example, these are forms of Chinese hieroglyphs; this is an eye, a tree, etc., the form in which you find them now on a Chinese page of print. We can trace it all back to this. If we could stop to examine the Egyptian hieroglyphs, we should find that the pictorial representation comes from the forms of birds and animals. This is a root of literature, and it is identical with the place from which the North American Indian started.

Here, for instance, is another Eskimo drawing, a representation of harpooning a whale. This is quite parallel with what our children do in the lower grades. Children will often give us simple dramatic representations of incidents from story or from life, and we marvel at the work. I was looking at an exhibit yesterday at Milwaukee, and it was quite remarkable what the younger children do in this line. But, as you know, and as Professor Dewey himself has pointed out, when you come to the next grades, you do not find continued development. The work done by the children in the first grade is generally not approached in natural power until they come to the fifteenth or sixteenth year, and then they begin to come back, if they have right training, to something like the same power they started with in the sixth and seventh years.

Is it because we have not found the way, or is it that there is no way? My position is that from this beginning there is no way depending merely on imitation or representation to find an orderly development of power. The mind of the primitive peoples could not wish for a realistic prospect, as we do; consequently to them the symbol — the man with arms and legs — gives all the idea of a man that is required. You must find some other form of attack, and what does that come from? What it comes from we can see when we look at primitive Polynesian art. Here we have the primitive beginning of literature used as the elements of power. When you apply this to the structure of design, when it is a question of spacing, the question of arrangement, of quantification of your areas, all that is fundamental, is what makes it art. The fact of its being a representation of men does not make it art; that is literature. The setting is what makes it art. What difference does it make what they represented before they became conventionalized? That may be of interest to the scientist, the archæologist. To the artist they are of interest as they take on order. Take this example of the primitive Peruvian textile. You have, of course, the figure of a man. The fact that this is a man is of interest to Peruvians; it is of no artistic interest to us; but it is a question of spacing, of how the pattern is worked out, that interests us.

Now, the proposition I am going to make — the only proposition — is that the real power of man over the elements of art structure comes, not from the representative element, but from the structural element. That is, it comes from what we do with material things in their actual human and social uses — textiles, clay, wood, metal, stone, all of these substances; and what renders them in their useful forms agreeable to us is the application of pattern to them, if you like. Now we want to see how far this is going to carry us.

This example is a reproduction from the very primitive Assyrian or Mesopotamian tablet of pressed clay of possibly several thousand years before Christ. You have here some form of deer, and here the lions stuck full of arrows. Now, while there is representation here, is there art? No, no art that gives us the key to anything else, because there is no spacing. It does not itself produce anything or give us anything, or give us the key to the development of structure. But if you look at the later form of art, you find upon the façades of buildings, upon stone panels, the running form of the lion, the horse, the hunter, worked into a system of lines which give force to the panel itself, diversifying it into the whole attractive rhythm of lines.

Here is a very interesting drawing from South Africa. It is a Bushman drawing. It represents men driving wild cattle. You might think, and it would be a natural conclusion, that from this the negroes — Egyptians — passed by realistic impression up to the great works of art we know. But there is no such thing. There do not exist any links between this primitive beginning and the great works of art we know.

What we want to know is what the elementary steps are by which progress was made. Now, what shall we contrast it with? Fortunately, we can trace Greek art back to the North American and South African plane. Here we have Greek art in the primitive form. Take these forms of men; they are almost as crude as those of the North American Indian, of the Eskimo, or of the Polynesian, and the horses even more so — much cruder. But the question on which everything hinges is here given very clearly; it is a question of spacing. How shall the lines of the

horses' backs and the reins contribute to the idea of motion? In that the whole key to Greek art is involved; and if we have the time to study it in detail, we shall see that with such an idea applied to the problem of structure there is by steady steps a rise to finer and finer and more and more delicate solutions of these problems. And, to state my proposition, what has made the finer and finer line from the realistic side of the drawing is not the realistic motive, but the desire to find finer and finer space relations and line relations. In other words, I would hold that the realistic development grows out of the desire for the finer and finer decorative motive.

There are numerous examples; we get them all through the arts of the world — the oriental, the North American, and the African. Here, for example, are some pieces of pottery, from the point of view of texture and decoration not unlike those of the earlier Greek work. But when we come to aggregate this and take a number of examples from the early pottery, we shall see many interesting things. In the first place, zigzag patterns which go back to the basket work of the North American Indians — exactly on a level with the art we are studying in basketry. The whole question of the line here is only a development into the decorative form of the primitive elements we see in the earliest of the Greek designs.

Here we get the volute in the Peruvian form. Take this example. What do you suppose this is? Certainly, as a matter of decoration, extremely fine; this working up of primitive lines into something complex — the interlacing of all these lines. You can see the leg of the flamingo here. How beautiful it is; and yet, what is it? It might be Greek, but it is Peruvian; just to show how through taking bird forms they work out details. The Greeks largely confined themselves to animal and human forms. In doing that they utilized the lines that we see in nature.

Take another example — from the Greek. We find here all these forms of spirals, and the great patterns upon the shields used as a matter of spotting, and the figures themselves spotted in, used to diversify the other forms of lines.

Now, to take, for example, an oriental specimen. Take an

early form of Japanese bronze. Here is a decorative background of the Japanese trinity, made in the seventh century of our era. See how it has utilized lines here in this fine open-work bronze. How strong and full and clear the lines are! It is not easy to trace the relating pattern, it is not too obvious, and yet there is harmony between the curvature in every detail.

Here is an example of what? It might be Greek, because I can show you Greek bronzes of the fifth century B. C. similar to this. This is a Buddhist bronze statue made in Japan in the very beginning of the seventh century. Although it be a detached statue, it had its place in the temple. It keeps the lines of drapery down tightly to the solid substance, not working out the realistic details, but keeping itself within a certain scheme of structure, keeping the lines flowing into each other.

Here we will take an example of Greek work. Here you may say, if anywhere, you get realistic work; but, after all, this figure of the bronze charioteer was no doubt used in some form of architectural background. The long lines, parallel lines, the simplicity of them contrasted with the conventionally æsthetic form of the Greek — this has virility.

In this Corean statue you will see at once the structural form. These lines of drapery swing off in a severe curve to the right; then the working out of the figures into the sharp-cut profile, the expression of the profile entering the scheme of total beauty — all being treated as decorative problems.

I do not like the word "decoration." It seems to imply too much artificiality, a superficial prettiness. The word we ought to use is "structural." The lines, the spaces, the proportions, lie in the structure of the thing itself. The large spaces are given, and then we create upon the background of those the smaller spaces, and we call them patterns. Unless those spaces grow one from the other, they are vicious. I like the word "structural" as a substitute for "decorative."

Now, if we take a Greek form of an evidently decorative panel of the well-known tombstones, we find three figures, the lines flowing from one figure into another through the beautiful cross-

ing of the hands. Here the lines of the drapery work up into the hand and down across the neck.

I do not mean to say that we do not draw the motives from nature. The reason we have worked up so much of nature into our beautiful forms of art is that we have structural, useful, social matters to attend to and to make beautiful, and so we have been drawn along to realize all these subtle lines of beauty.

Take an example of this early stage of Japanese art. Here we have three figures entirely detached, the central figure very beautiful and graceful, altogether four or five degrees of relief, being a wonderful interplay of motives of line. To find another such harmonical and rhythmical work of line we should have to go to almost the greatest work of the Greek itself; and yet this is in the earliest centuries of Japanese art.

Of course, when we come to the Parthenon itself, the structural use is perfectly clear. We finally come to the power to take a rectangular panel like this, and set in the center a figure with all these lines of action, and yet with all the beauty of curvature and the distribution of repeating lines that we find in the earlier Greek art. We get here something more delicate than we have had before. But, after all, this is only a working together of two or three systems of lines. We find a system of lines corresponding with the main figure.

We now come to such a form as this — this detached statue which is set against a façade. What is this? It is Japanese. We have great delicacy in the sway of the whole figure and the modeling of the face.

When we come up to this form of Praxiteles, we get the broader line. There is great grace and beauty, there is proportion, but there is possibly just a little bit too much pride upon the human working out, too much pride upon the power to express a fact and the skill to express that fact; and from this time on there is great danger that the realistic motive shall take the place of the structural one.

And so it is. Let us take just a few examples. If that upward progress of art was comparatively short, there was a long downward fall. Of course, I am not going to say that the only

cause of the fall was a desire for realism, but I am going to say that one of the most important was a desire for realistic impression. In such an example as this you have not anything of that primitive simplicity of building, of lines; no order, no meaning, no harmony, no large expression. It is clearly a representation of a violent case of action, but I venture to say without much of the original architectural beauty. Try if you can to draw a line from head to head of these lumpy figures of children; see what kind of spaces it makes. It could not be used as a beautiful decoration upon the façade of anything; the main lines are entirely cut. It is in art as in music, you should get a single tone-impression. You cannot get it there. Even when you come down to portraiture in the late Græco-Roman period, you do not get the sand-papered effect of the face that you might think would go with the forms of gods and goddesses. This is symbolic. You have eyes there; you have the nose; you are getting back to the primitive symbol of realism. Unless it be a visual effect, it is not art, but literature; and literature deals with thought material, abstractions. But when you come to visualizing, then to be art it must be one single impression.

Here is European art at its lowest stage. Centuries after the Parthenon it fell gradually down to this. How can it rise again?

The history of European art contains two distinct periods — that culminating four hundred years before Christ, and that which began in the twelfth or thirteenth century. Our art books would lead us to believe that in this revival there was an effort to return to the old art; but here it was the idea to set the forms of these frescoed angels at the back of this Gothic colonnade, the long lines of the wings making a beautiful cutting of the space. Here we get back to the same key. We started with the primitive structure of material, useful things. We find that, after all, from the beginning it was mural work — the question of treating architecture as if it were a utensil. It is a useful utensil, and to put fine line, whether of graving or color, upon it, is after all only a higher grade of the same kind of structural problem we find in the Greek and Japanese work.

The development of art from Cimabue to Raphael is the

development of mural painting. The opposite view is that forced upon us by our modern art galleries. So far as these are old masters, they are only fragments. They have been pulled away from the places for which they were originally designed, which is to set aside their relation to such an architectural surrounding.

When you sit down to paint an abstract panel, you have no key. You have abstraction, you have generalization; you have affinity with no special center by which you should make this space rather than another space, unless your mind is filled with the beauty, the pure musical beauty, of spacing and proportion. The art collection is the dead bones of the older art; it does not show the key which led to their creation. But when you take an example of mural work, that of Raphael on one of the walls of the Vatican, you see the key is given in the architectural arch which is to be filled. You find the figures working up to the particular space; you see the arch of every brow, the swing of every piece of drapery reverberates with the form of curvature. The whole of it is vibrant with the principle of curvature which is already started for you there. And Raphael was perhaps one of the most sensitive of all European artists to the problem of the structure of curvature.

I wish to point out the fact that even in Japanese art mural work is the key. William Morris in one of his lectures said that Japanese art was an inferior form of art, because it had no architectural root. He probably referred to the petty little decorations upon teacups; he could not have meant the older forms, for they are based upon the mural design. For instance, the work on the sliding doors when moved together and shut, the lines of rocks and trees, animals and birds, work across the whole just as structurally as they do in our own work, but using that side of nature for building up great space structures. In this example see the grandeur of the line — how nearly the sweep of line is like the old Greek; how large the spaces, like the old Corean; the simplicity of the line, just like the old Japanese bronze; the massing of the heads together at the top; and then the great cool spaces of the drapery of the main figure below. This is a specimen parallel to the work of the old Japanese. But when you come to look at that

in marbles of low-relief cutting, for the façades of buildings, or for interior panels, you find here a very primitive and naïve representation of the classic form made into the renaissance by a new decorative treatment of these lines of drapery, by the filling in of the space by a wonderful system of rhythmic lines. Right side by side with this I like to give the figures of the bronze screen enlarged. In this low-relief work, these Buddhist angels, child-like figures, seated upon lotus leaves — the Nirvana — you get a wonderful working out in forms, just as Donatello worked out child figures. However, the point is that the realistic element here comes out of the desire to make the deeper structural or decorative effect.

Let us go back to Raphael. In our time Raphael has been somewhat decried, and from some points of view rightly. He was no master of light. The questions of line and light are not the same. I am not speaking of quantification of light, only of areas. Raphael was not a master of light in the sense that Velasquez was. But as a master of line he stands at the top. If you were to enlarge any one figure, it could be mathematically shown that the amount of curve is exactly the same, is rhythmical, all through his work; we have perfect sympathy in all the structure down to the finest degree. He first thought of the whole structure, the main spacing, the system of rhythm, and then worked out the details.

The other great master of structure was Michael Angelo. You might suppose that Michael Angelo, because he worked for twelve years or so upon anatomical studies, was governed by the motive of realism, and that you have got to stuff your mind with facts, and then, peradventure, when you have got hold of facts you may begin to create. That would be like requiring a candidate for literature to learn the dictionary. To learn to write is to express yourself as would a child. The artist today of the academic school in New York or Chicago will tell you that it is useless to attempt to teach children any serious art until they are about sixteen years of age. But the natural expression of a child which begins in his sixth or seventh year can be carried on to fit his desire to space and create rhythms therefrom; and if you give

him that, he will carry it on to greater development. In Michael Angelo we can see that never did he take these facts of anatomy and abuse them by using them to state facts. As you see here in one of the figures from the Medici tombs — this individual odd attitude of the awakening body, the drowsy head, how all the various forms of lines in it are sympathetic and related to and vibrant with the meaning of the line given below. And it is so with the work of the frescoes upon the ceiling of the Sistine Chapel — each having the greatest fidelity to anatomical fact used to express a structural unity.

Going back from Michael Angelo, the culmination of the second European period, to the Parthenon, the culmination of the first period, let us look at this example. Here is a system of lines passing from the upper left-hand corner down to the lower right; but between these two main systems of lines there are the transition points. The lines of one pass up into the lines of another, twist about, and return. Everywhere spacing is considered — the question of this space as a solid mass against this other space; the large relations of line are not in the least interfered with by the lesser lines.

I gather that I am regarded as a "Japanese" man, and sometimes I have heard students at a university say: "Oh, where is the Jap?" I certainly believe that Japanese art has an immense amount to teach us. To treat landscape as if it were a very serious way of building, and a splendid way of building, with the Japanese is centuries old. This is a very rich example indeed. It seems at first odd to you, because you are not accustomed to it. The aggregate structure is composed of two main systems of lines, then we have a curved system of lines working up without confusion, all being built up in an orderly way. In another way, there is just as much rhythm of angular and curved relation, of spacial unity and proportion, in this work as in the figure work of the old bronzes, or nearly as much as in the great Greek examples.

One of the greatest of all masterpieces of great structural work is this of Michael Angelo; how in the first place the stems of this mass of writhing members come up, and then swing out

into lines which have the double curvature. Perhaps this is one of the most complex examples, combined with unity of dramatic motion and spacing in relation to the architectural problem, that we have.

But from the day of Michael Angelo, what became of European art? Why didn't they do more of this? They had the buildings — why didn't they do it? Well, just about this time — a little before — there came in the desire for realism, just as in the Greek art seventeen hundred years before, and we find artists in Florence and other parts of Italy undertaking the study of just the natural muscles of the ordinary figure. This is purely a study of muscles and of the emaciated human figure, and just how to represent it as a realistic fact.

Michael Angelo even in his grandest moments never lost sight of the structural key. The other, lesser artists branched off in the desire to represent. If you take a bird's-eye view of European art of the sixteenth century, you will not find the architectural structural key with which European art was vital one hundred years before. How inferior it is to the old Greek and even the Peruvian ideals! Excrescences are allowed to interfere with the main line; so that the key to two things is lost: the key to the real representation of the figures is lost, on the one hand, and the key to mural decoration is lost, on the other.

What we come to is this realism in modern French and American art. Is there order here, is there interplay of line? The artist who did this has not the vaguest conception of the principles out of which the art power of the early Greek and Renaissance periods grew. Nine-tenths of the artists have not the least conception of the elements out of which true art grows. But a change has come into our American art within the last twenty years — a return to the mural, structural idea. I remember John Le Farge, about twenty years ago, in speaking of the art schools saying that there is only one chance for art in America; if it were possible to divert the faculties of American artists into mural work, we might have a revival of art. Robert Blum was sent out by the Harpers to make little representations of Japanese effects for illustration. Incidentally, while in New

York, he had the chance given him to make a great fresco, and at once he leaped into his right place — forced to drop his little delicate spotting, and treat the questions of line and space as the very elements out of which he built his structure.

Now we come again back to the Old World. We are here back with the great masters of Japanese, Greek, and Renaissance art, because the whole problem of line — the space-proportioning and unified line rhythm — those two things work together.

This is just the work of a modern art student. You see there is no attempt to show where it should be put, to treat the whole thing as a real rhythm. We have traced Greek art back to basketry. Now those might be Indian baskets, but they are not. They were made in Minneapolis. They are the product of the school children in Minneapolis. I am sorry to say they were burned up last year in the state exhibit, but they can make others as good. But here we are right back at the primitive root of art.

I had people in Minneapolis come to me, people from the newspapers, and they wanted to interview me on the question, because they called this a fad — all this sort of work. They said: Why should we, who are civilized people, today go back to barbarous art? I should say at once, because this is the backbone of structure. If you have mastered the main relations — even in the lines of such a pattern as that in two tones — to a structural problem, you have got the foundation on which to build; and from that upward to the Parthenon and to the Sistine Chapel is only a question of steps. But if you do not begin with that, you will lose that which gives the force and vitality to your work. If you attempt to begin with the complex without learning the simple, you will dally all your lives in confusion.

I want to go back to the beginning of European art, to the decorative work done in bone. What a wonderful work it is! They have taken the lines of animal forms and worked them in the form of handles and bodkins. All this is exactly in accordance with the line of structure, the principles upon which the art of the world has grown. Between this and the Parthenon we can trace almost every step of the growth. Between the Eskimo and North American drawings and the realistic drawings, the treat-

ment of the modern school, we cannot find any lines of transition or a normal growth.

Take this example of a bronze head. This is a Greek fragment. You have the line of the horse's head worked out into a more beautiful structure than ever before. All these lines, the whole setting, the character, comes from the spacing and the lines. Between this extreme piece of Greek work and the work of primitive man working on bones we have a line of transition.

This is the upper part of a painting by Georgione. How grandly he has given us open spaces! The Japanese love the open space. Mr. Whistler loved open spaces. It is the actual vibration of an area that is the groundwork of visual art.

Landscape is a comparatively modern thing. It is hardly given its full rhythm except among the Japanese. One might spend hours and hours, and yet not exhaust all the structural details in such a work as this. Of course, it is not a work of our day, but it is a work we might do well to study. It is a hobby of mine that there is nothing to prevent our artists today from doing just as serious work, just as good, as far as line is concerned. The problem of dark and light, of color, require a different faculty. You may begin with spotting — a formless treatment of line and color — if you choose, but it is not an orderly way to develop. Whatever you may do with your quantification of light, you cannot get rid of the necessity for spacing. If you have not fine spaces, no matter how you may trick them out with color and light, they are not strong art.

Now, from this point of view today I have tried to take you over all sides of human art, to see something of the unity that underlies all art. Perhaps you may not allow all that I have claimed, but I thank you for the attention you have given to this argument.

LIONEL OF ORKNEY — A ONE-ACT PLAY.

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THE following play was written by an eighth grade at the close of nine months' work in literature. During the preceding year this class had made a study of chivalry and of other mediæval institutions. For its eighth-grade work such literature was chosen as would complete and beautify the imagery resulting from that historical study. We read in class Tennyson's "Coming of Arthur," "Gareth and Lynette," "Sir Galahad," and "The Lady of Shalott." The teacher read to the pupils Malory's version of "Launcelot and Elaine," and of the Gareth story. At the same time each student was reading at home two or three books of the Arthur stories retold for children — Frost's *Knights of the Round Table,* Radford's *King Arthur and His Knights,* Pyle's *Story of King Arthur,* Bulfinch's *Age of Chivalry.* As a result of reading these different authors there arose the question of the sources and treatment of the stories. The study necessary in answering this question created among the class a new feeling of imaginative freedom in story-telling, and an appreciation of the artistic qualities of a tale and of the possibilities of the craft.

As a direct preparation for the writing of this play we spent two months in training ourselves in literary composition. After the pupils felt some confidence in their power to write a readable thing, we set to work directly upon the play. Different members of the class submitted the skeletons of plots either original, or transcribed from stories read, or partly original and partly suggested by reading. We worked these plots over in class, and finally compounded into one some ideas of Tennyson's, of Malory's, and of our own. Malory's quaint English had caught the pupils' fancy, and they decided to try to imitate it. This entailed a more careful reading of parts of *La Morte D'Arthur,* with attention focused upon the diction.

The class made a distinct effort to have this play simple. We spent some time discussing means to this end. Plays are frequent in our school, and as a consequence the pupils had sufficient experience to make the discussion valuable. They decided to have no change of costume or of scenery. They had just seen a French drama in one act. This plan was the solution of their problem of simple staging, but it added to the difficulty of the composition of the play. The whole plot had to be reconstructed to occur in one place and at one time. This simplicity of plan is to one the best point in the drama. It very much pleased its authors, also, at the final working-out.

The play is a class composite. Sometimes parts were written at home, read in class, accepted, rejected, combined, changed, to please the social opinion. Sometimes the composing was done at first-hand and red-hot during the recitation—a bit from one person, an addition by another, a change by a third, a general expression of acceptance. The prologue was written in two parts by two pupils. It will be found to savor strongly of the prolbgue to *Henry V.*, which captured the imagination of one of the boys.

The story was acted on a stage bare of scenery, with only a rough table and a few old-fashioned cooking utensils for properties. The costumes were simple. They were used, not with the idea of correctly presenting a time so vague and so inaccurately known, but with the purpose of making the stage picture beautiful and sufficiently unusual to cause the auditors vividly to realize that we were representing an olden time.

The play is presented here because it is thought that any suggestion toward simplifying and pruning school plays will be of some use.

PROLOGUE.

If this poor stage were but a kingdom with kings and knights to act, then could with all his glory, Arthur, the mighty king, come forth and do deeds of knightliness. But here one person must take the place of hundreds. Suppose within this stage is Arthur's mighty kitchen, with fires blazing and spits of meat sputtering gaily, with hundreds of kitchen knaves at work preparing the great feast of Pentecost. Table after table stands surrounded with knaves rolling, kneading, and slicing food for the feast.

Outside this royal kitchen is Arthur's castle, the center being his hall,

around which stand the keep and other buildings. Surrounding these is the castle wall, with huge towers which seem to loom up to the very sky. Inside the great hall throng the knights in shining, long-skirted armor of chain; the ladies in splendid gowns; and the many subjects, seeking justice and receiving it from their noble king.

He is seated on his throne of golden dragons, garbed in a robe of red samite broidered with golden dragons, and the dragon crown is on his head. But here, with all this glory and this splendor, the most glorious of all is Arthur's noble manner, and his kindly face that seems to look down upon his people and bless them, as the sun blesses all on which it shines. Here, truly, is the glory of the land — a king who wishes his knights to reverence and honor their sovereign, to live a pure life, to speak the truth alway, to right the wrong that comes within their paths, and to do ladies, damsels and gentlewomen help whenever it is needed. And so strong is Arthur's influence that all the knights of the Table Round strive to gratify their noble king's desires that they may be well worthy of knighthood.

LIONEL OF ORKNEY.

[*Scene: Arthur's kitchen. Lionel telling story. Servants listening.*]

LIONEL. And forward rode a knight, all clad in rusty armor, and threw down his glove at the Sparrow-hawk's feet, saying: "Thou shalt repent thy insolence to Queen Guinevere." To this the Sparrow-hawk replied: "Thou art the one that shalt repent." Thereupon they withdrew to their stations and dressed their spears. Then with a mighty shout —— *(Kay enters; stamps his feet.)*

KAY. Idle knaves! Get ye to work! You do naught but talk. *(Servants scatter.)* And you, Sir Fair-hands, is it not enough for you to lumber the kitchen without keeping the others from their work with your silly tales? *(Enter Geraint.)*

KAY *(turning to Geraint)*. By my troth, Sir Geraint, I came unto the kitchen and found this young knave telling one of his fairy-stories. What think ye of it?

GERAINT. Be thou not too hard on them. Is not the work done?

KAY. I do believe it is.

GERAINT. Shall these poor knaves, then, have no leisure? Speak gently to them. A kind master makes a willing servant. *(Exit Lionel.)* See how he carries himself. I think, Sir Kay, this Lionel is of noble birth. He tells the tales rightly and he knows all the events of chivalry.

KAY. Bah! The listening knave hath merely caught the manner of his betters.

GERAINT. Time will prove. *(Exeunt Kay and Geraint. Enter Lionel carrying stick as a lance. Servants laugh.)*

FIRST SERVANT. Behold! Sir Lionel of the crooked stick!

SECOND SERVANT. Doth any weak-heart here dare to meet yon noble knight? If so, let him stand forth.

THIRD SERVANT. I, the conqueror of Arthur's kitchen, do here, in way of challenge, throw my gauntlet at your feet. *(Throws dish cloth.)*

LIONEL. Do you so hunger to bite the dust? Prepare, false knight! *(They rush together and wrestle. Lionel wins.)* Behold the conqueror of Arthur's kitchen laid low. Who next will —— *(Clash of arms outside. Servants rush out. Noise of conflict. Shouts.)*

KAY *(outside)*. Niccon! Lionel! Safir! *(Appearing in door.)* Lionel's doing! *(Servants enter shouting, with Lionel on their shoulders.)*

SERVANTS. Lionel, defender of the helpless! Victor of the courtyard! Sir Lionel of the baking table!

KAY. Fools! What mockery is this?

FIRST SERVANT. Go ask yon knight who lieth in the courtyard.

SERVANTS. Most noble Lionel!

KAY. Niccon, get you to the forester. Bring me back the peacocks for tomorrow's feast. Lionel, to the peat-bogs! *(Niccon and Lionel exeunt.)* *(Kay. Turning to others.)* Now, tell me with goodly haste the cause of all this stir.

SECOND SERVANT. Two knights were at a bout in the courtyard.

THIRD SERVANT. And one was unhorsed and lay on the ground in a swoon. *(Geraint enters and stands in door listening.)*

FOURTH SERVANT. The coward Modred heeded not his helpless plight, but rushed upon him with lowered lance.

FIFTH SERVANT. When forward Lionel sprang. He seized the bridle and with mighty force sent the horse back upon his haunches.

SIXTH SERVANT. And Modred rolled in the dust.

GERAINT. What! Is Modred down? Methinks the lad hath done right well. It is a sore shame that a knight of the Table Round should so demean himself. There speaks the lad's noble blood, mesceems, Sir Kay.

KAY. Mayhap, but I doubt it. *(Enter Niccon and bows to Kay.)* What wouldst thou?

NICCON. I come from King Arthur. He would see Sir Geraint and Sir Kay in his chamber. *(Exeunt Kay and Geraint.)*

FOURTH SERVANT. Geraint is sore loving unto this Lionel.

FIFTH SERVANT. Yea! Is he better than we are that he should be thus over-praised?

SIXTH SERVANT. Natheless he is wonderly strong.

THIRD SERVANT. Ay, but he knows it..

FOURTH SERVANT. Yea, truly! How doth he strut up and down like a peacock with its tail spread!

FIFTH SERVANT. How like a beggar he looked a few months back when first he came to Arthur's court! *(Enter Lionel).*

LIONEL. Cowards! Stint your noise! What say ye of beggars behind

my back? For wit ye well I am no beggar. I am a king's son. *(Servants laugh.)*

SECOND SERVANT. List how he plays the overlord!

THIRD SERVANT. A king's son! Marry, but he looks it.

FOURTH SERVANT. Methinks your father ne'er saw a knight.

FIFTH SERVANT. I will tell you this Lionel's cognizance. It is a frying pan with a dish clout rampant.

LIONEL *(striking the speaker)*. Dog! So be to all insulters of King Bors of Orkney!

SIXTH SERVANT. How comest thou here, then? Thy fame is naught more than mockery. Yea, it seemeth me that my father is Leogrant, king of Northumberland. *(Enter Lady Blanche.)*

LADY. I seek Sir Launcelot. Pray, is he here?

SECOND SERVANT. Nay, but here is Sir Lionel, knight of the crooked stick. Will he not serve?

LADY. Knaves, be quiet! Tell me where the noble Sir Launcelot abideth, if ye wot it. But who is this Lionel of the crooked stick?

THIRD SERVANT. A noble knave of scullion blood. *(Enter wounded knight.)*

KNIGHT. What seekest thou here, fair lady? The kitchen is all too rough a place for thee. If it were not for this young Lionel that hath saved my life, I would not myself be here.

LADY. I seek the most pure knight in all the world. Only such an one can serve me. Yonder in her castle bideth my fair sister, imprisoned by three wicked knights, who guard the castle-gates. Before she can be free, these robbers must be slain by this sword. It was girt to my waist by the charm of a wicked enchanter and cannot be drawn save by a stainless knight. Many years have I traveled on this quest. From Charlemagne's dominions to the land of the Holy Sepulcher have I wandered. Many a knight hath assayed, and one and all have failed. Much mockery have I sustained. I pray you, Sir knight, make trial.

KNIGHT. Ay, that I will. But if I succeed not, will ye let yon kitchen knave try his skill? For wit ye well he deserved it. He served me right nobly this day, when I was unhorsed.

LADY. It is passing strange to see a knight set store by a kitchen knave. Yet did I hear that I should see wonders in Arthur's court.

LIONEL. Ay, noble lady! But not in the kitchen bide the wonders. Saw ye not King Arthur throned and crowned? There standeth the great glory of our land.

LADY. Soothly have I seen him, and my heart shook at the sight. Verily I thought I looked into heaven and beheld Sir Michael or Sir Gabriel or other archangel. But I marvel to hear such knightly words upon the lips of a scullion.

KNIGHT. It all betokeneth some mystery about this Lionel, I wist. He hath the marks of knightly blood, meseems.

LIONEL. Oh, the lady with whom I dwelt erstwhile hath been kind to me. I companioned with her sons.

LADY. Ay? Lieth knightliness, then, in the friends a man keepeth and not in the blood? *(Turning to wounded knight.)* But now, Sir knight, make thine assay. *(Knight tries to draw sword and fails.)*

KNIGHT. I am not the knight for thine adventure, and sore it shameth me.

LADY. Nay, be not so heavy. All the knights of the Round Table have made trial but now, and no one hath stirred it a whit.

LIONEL. What? King Arthur? Hath he tried?

LADY. Ay.

LIONEL. And Sir Percivale?

LADY. Ay.

LIONEL. Then art thou doomed to wear it all thy life, I fear me.

KNIGHT. Yet do thou try. It is the day of Pentecost, the day of miracles.

THIRD SERVANT. Beware! His greasy hands will soil the hilt.

LIONEL. I wot well I am not worthy, but I fain would try. Sure no harm can come of it.

LADY. Yea, set thy hand to the hilt, good youth! *(Lionel draws sword as King Arthur enters.)*

LADY. I am free! Behold, Sir King! I have found my knight.

ARTHUR. Most noble Lionel, this day hast thou proved thyself worthy of knighthood. And thy rank, too, well deserveth it; for hither hath come but now a messager from thy lady mother, Queen Bellicent of Orkney. She hath told me of her sore heart and of thy disguise. Little wote she that the love of knightliness was so strong in thee that thou wouldst stoop thy head beneath the kitchen roof to become a knight.

LADY. Art thou the son of Queen Bellicent of Orkney? Then must thou be of noble blood. What meanest thou by that tale of the kind mistress and her sons that thou hast told us of?

LIONEL. Now let me prove you that this tale is true. The mistress is my mother, and her sons my brothers. I vowed unto my mother ere I came here to keep my name a secret for a twelvemonth and a day.

LADY. And thou didst guard a favor as thou didst guard thy vow, it would honor any noble maid to put one in thy keeping.

LIONEL. I have not yet a casque wherein to set it; yet if of thy grace thou wouldst grant me thy favor, mayhap I might sometime win to a helm.

LADY. Here, then, Sir Lionel! Guard it well. And here do I gird thee with this sword that thou didst free me from.

LIONEL. Fair lady, I am not yet a knight, though I fain would be. Yet this I will vow, that as soon as I become a knight I will undertake thine adventure.

ARTHUR. As for that, it is in my heart speedily to amend thy case.

Kneel down and lay thy hands in mine, and swear to reverence the king, as if he were thy conscience, and thy conscience as thy king; to break the heathen and uphold the Christ; to ride abroad redressing human wrongs; to speak no slander, no, nor listen to it; to honor thy own word as if thy God's; to lead sweet life in purest chastity; to love one maiden only, cleave to her, and worship her by years of noble deeds; to love the truth and all that makes a man.

LIONEL *(drawing his sword)*. On this holy rood I swear to take upon me and to keep all these vows of chivalry.

ARTHUR *(giving him the accolade)*. In the name of God, of St. George, and St. Michael, I dub thee knight. Arise, Sir Knight!

[*Curtain.*]

WORK WITH MINERALS FOR LITTLE CHILDREN.

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THE work which is here reported was chosen primarily because of children's pleasure in collecting and owning stones, and because the recognition of the common minerals is an essential basis for intelligent work in geography. Several different kinds of work contributed to the better realization of the subject. Reading, writing, mathematics, and manual training aided in the development of the children's plans in much the same way that these subjects would be utilized by an adult in doing a piece of work. When an architect plans a building, he makes his drawings, estimates his strains, writes his letters, gets his information from books; and because he is not in the process of being educated, these parts of a piece of work are unclassified; he is making a house plan. The group of children whose work is reported were trying to classify a collection of pebbles from the lake shore. They made boxes from cardboard to hold the stones; they wrote records of experiments and compared notes; they read to find what other children had done in play similar to theirs, and to get directions for carrying out experiments which they themselves could not plan. Because they are in the process of education, their work is divided, and this part is called manual training, that part number; this recitation reading, and that one writing.

The work was done by a group of children in the University Elementary School, half of whom were beginning first grade, the other half beginning second grade. The series of lessons occupied, approximately, one hour daily for six weeks. The first stones to be classified were quartz, since they were most attractive on account of their sparkling whiteness. Each stone was tested; if it would scratch a piece of glass, the children identified it as quartz. Regarding those which remained, questions arose as to what they were called. A series of experiments was made to determine this. Most of the children were familiar with lime as

the chief ingredient of mortar. At the teacher's suggestion, they put some acid on pieces of lime, and discovered that in every instance this caused effervescence. They tested the mortar with acid, and found that it too effervesced. Thus they established a means for discovering the presence of lime.[1] When they tested one of their stones and found effervescence, they understood that it contained lime, and they were given the name "limestone." They proceeded to sort out the limestone in their collection.

The next step was to label both the quartz and the limestone. The older children wrote the labels for themselves and for the younger group. This necessitated a writing of the words "limestone" and "quartz" some twenty times, and for the younger group it required frequent recognition of the written words during the process of labeling.

Another day, as work to be done alone at their desks, the older group were given a glass rod and a shallow dish containing a little hydrochloric acid; also a plate on which were substances consisting mainly of lime. They were left to test these materials and write their results upon the blackboard. The new words which they would need in writing were the names of the materials tested, and a list of these was put upon the blackboard for reference. At the end of the period the record was examined with the children, and both subject-matter and written form were discussed. Any differences of opinion regarding results were settled by trying the experiment again. These details in regard to unsupervised occupation are given simply to illustrate a type which in its nature is adapted to independent work. The result desired was independent judgment of each child; hence it was reasonable to work alone rather than in a group. The training in skill and carefulness which comes from the handling of materials in experimentation is very great; therefore each child should have his own set of materials and time to do the work alone, while the writing of the result summarizes the experiment in the child's mind. In this case the seat work was more valuable than a recita-

[1] The effervescence, of course, is not conclusive evidence of lime, but of some carbonate; the general appearance of the stone taken with the fact of effervescence was sufficient in most cases to enable them to identify the stone as limestone. —[EDITOR.]

tion. The distinctive value of seat work needs recognition. It is too often looked upon as an unmitigated evil to be endured only because of the necessity for economizing the teacher's time. However, to make unsupervised work most effective it must be followed each time by intelligent criticism.

After their own experimentation, the children read the printed record of another group who had tested the same substances:

We went hunting.
We did not take a gun.
We took acid.
Guess what we were hunting for.
We found it in marble and limestone.
We found it in bones, shells, and chalk.
We found it in lake water.
We found it in the soil in our school yard.
"Lime seems to be in a great many places," said Charles.

The children were shown some beautiful specimens of coral as typical products. They were much interested in them, delighting in their beauty and their resemblance to common things. The group made the following account of coral in order to tell the third grade what fun they were having:

CORAL.

(WRITTEN BY FIRST-GRADE CHILDREN TO SEND TO THE CHILDREN OF THE UPPER PRIMARY GRADE.)

We are studying coral.
We wanted to tell you something about it.
The coral is the skeleton of an animal.
This animal is called a polyp.
It lives down in the sea.
Often it is about as big as a pinhead.

Sometimes it is much larger.

It fastens itself to a rock.

The polyp's children grow on top of the polyp or the side of it.

They grow together in bunches.

After a while the animals in these bunches die.

The hard inner part is left.

This is the coral.

We had some coral that looked like trees with snow on them.

Some people think this kind looks like the horns of deer.

There is some coral that is round with funny little veins.

Some people say this looks just like a man's brain, only it is white.

There is a kind that is yellow.

It looks like cauliflower.

The red coral looks like firecrackers.

All the coral has lime in it.

The children began to make the account collectively, but at the end of fifteen minutes, when it was time to go home, the result was haphazard and incomplete. At home two of the children dictated an account of the coral without help or suggestion. These accounts were written upon the board and criticised by the children wherever they thought them not intelligible. This critical reading by the children of what they have written is urged as valuable training, not only in English, but also in clear thinking. The child holds in mind his audience, and there is a stimulus to complete expression similar to that which is lent to oral expression by the presence of a listener.

Much self-consciousness and the ensuing timidity may be avoided by making the very first writing an expression of opinion rather than a test of skill in reproducing a word which is not a genuine expression of thought. This was illustrated by the younger group as follows: One of the older children asked what coral was made from. In answer, both the older and younger groups were sent to the blackboard, and after a piece of coral had been tested with acid, they were asked to write the name of its material. The older children wrote at once the word "lime," and one of the younger children attempted it. He was helped to write the word, and a second piece of coral was tested. This time all the children, with one exception, attempted to write it. The results were crude, sprawling, and often unrecognizable; but the attempt was freely made. The testing of the coral was repeated with each of the seven varieties, and each time the child wrote what he inferred from the result of the test. Thus every repetition in writing was an expression of individual opinion. It was the first time they had been asked to write anything, and this word they had seen many times both on their labels and upon the blackboard. When an opinion is the matter in hand, the writing becomes incidental to it, and the child is conscious of trying to say something rather than to produce an effect.

Among the pebbles we found some geodes containing quartz crystals, but these were so small as to be unrecognizable in form. Therefore large and more perfect crystals of quartz were brought to the class. These included smoky, rose, and milky quartz, topaz, and amethyst. Because these all scratched glass the children identified them as quartz.

They read the following reading-lesson printed for a former group of children and partly composed by that group:

QUARTZ.

I.

One day some children went to the lake shore.
They found many kinds of pebbles.
Some of the pebbles were white and smooth.

They sparkled in the sunshine.
They were harder than glass.
They scratched glass.
These were quartz pebbles.
All quartz is hard, but not all quartz is white.
Some is pink, some is brown, some is purple, and some is yellow.

II.

Have you ever seen quartz crystals?
A little boy said: "They look like icicles!"
Do they?
A little girl said: "They look like fairy church spires!"
What do you think they look like?
Wonderful fairies must live in the ground!
We find so many kinds of crystals in it.
Some look like sheets of paper.
Mica crystals look like that.
Some are cubes.
Some are brick-shaped.
Some are pyramids.

III.

A little boy thought that white quartz crystals were glass.
Was he right?
Rub some sand on glass.
It scratches the glass like quartz.
Sand is little grains of quartz.
Men make glass of quartz sand and lime.

They put sand and lime in big clay jars.
They melt the sand and lime in the fire.
Then it looks like molasses.
They put a long tube like a horn into the soft glass.
With this tube men can blow it into the shape of bottles, vases, and lamps.
Quartz is not glass.
But glass is melted quartz with lime in it.

Illustrations of the crystal forms mentioned in II were shown by specimens of galena, fluorite, calcite, mica, and finally by some large maple-sugar crystals. The children tried to find out what the last mentioned crystals were, using the acid test and the glass; but both failed. One child smelled them, and great was the astonishment of the entire group upon tasting these crystals.

They were enthusiastic to make sugar crystals, and the directions for work were given in writing whenever these were sufficiently simple. Necessary explanations were thrown in orally.

When the crystals were made, the children composed the following recipe, which applies equally for making crystals of salt, alum, bichromate of potash, and copperas, from all of which good results may be obtained:

RECIPE FOR SUGAR CRYSTALS.

Take some cold water.
Add sugar until no more will dissolve.
Put the water over the fire to boil.
More sugar will dissolve in the boiling water.
Again add sugar until no more will dissolve.
Then set the dish where it will cool.
In two days the crystals will come.[2]

[2] Two years ago, when we made sugar crystals for the Christmas tree decorations, we received information from a wholesale rock-candy manufactory which was of great value. Upon request, this information is reprinted from a back

In order that the children might see a greater variety of crystals, the class spent an hour in the crystal exhibit at the Field Museum, where they gained a much better idea of the definiteness of form and the beauty of crystals.

While we were in the museum we saw some fine examples of fossils, and the children were interested in recognizing the "pictures" on them. When later we found some little fossils on the lake shore, their delight was still greater. The teacher was curious to know how they supposed the impress was made upon the stone. One child only thought that the Indians had made it. Most of them thought the pictured object fell upon the stone, but two of the children without suggestion thought out the actual process. The fact that they had made limestone in a previous lesson gave the clue, for they could think of limestone as hardened mud. In order to test the theory of these two children, each child made upon a lump of clay an impression of a shell or leaf or flower and left it to harden. While this result proved nothing, it strengthened the possibility of a similar method of fossil formation.

For the purpose of binding together in the minds of the children partial results, fragmentary discussions, and individual opinions, the following reading-lesson was written. It summarized the work of several days.

number of the ELEMENTARY SCHOOL TEACHER, now out of print.

Forty pounds of sugar.
One gallon of water.
Stir only until sugar dissolves.
Boil to 234° F.
Keep at a temperature of 70° F. or above for three days.
Avoid any jarring.

The first necessity for attaining large and clear crystals is to use sufficient material, so that a considerable weight may be produced. Occasionally thermometers vary slightly, so that 234° F. does not produce the proper density, but this may be discovered in about five minutes after the syrup has been poured out to cool. By that time a coating has formed on the top which if rough and irregular indicates successful crystalization. If it appears smooth and glassy, the syrup must be boiled and brought to a temperature two or three degrees higher than before.

FOSSILS.

There are some wonderful stones in the Field Museum.

They are called fossils.

Some have the print of fern leaves on them.

Some have the print of fishes on them.

One has the print of a palm leaf.

We found some small fossils on the lake shore.

They have the print of shells on them.

These fossils were in limestone.

We wondered how the picture was made.

We thought the shell fell on the stone and left its print.

But we could not press shells into hard stones.

We remembered that when we made limestone, it was first mud then it hardened into stone.

We thought the shell must have fallen on the mud and made a print; then the mud must have hardened into stone.

We made prints of leaves and shells and flowers in clay.

It only took one night for this clay to harden; but the fossils were made thousands and thousands of years ago.

They read with much pleasure the following story, written by Flora J. Cooke.

THE STORY THE FOSSIL FERN TOLD.

Once a family of ferns lived in a forest.

They did not care for the bright sun.

They liked the cool shade under the trees.

They liked the moist soil by the forest lake.

One little fern grew close to the edge of the water.

She bent down toward the waves.

The waves rolled up toward her.

For a long time they did not reach her.

But after a while great storms came on the lake.

The water rose higher and higher.

Fine, soft mud came with each wave.

It covered the fern and all her family.

Year after year the storms came.

The mud grew deeper and heavier over the fern.

Do you think anyone ever saw the fern family again?

Many years after a man came to the forest.

All the old trees were dead, but a few of their grandchildren were there.

The lake had gone away.

But the old father river was not far away.

The soft mud could not go away.

But it, too, had changed.

It was now hard rock.

The man knocked upon the rock with his hammer.

Then the rock gave a leaf from his stonebook.

There was a picture on it.

It was a picture of the little fern.

There it was, the leaflets, midrib, and veins.

The man could read the stone's story.

It told him how the fern grew by the forest lake;

how the waves covered it with mud; and how the mud hardened into stone.

Can you read the stone story of the fossil fish?

As soon as the pebbles were classified, the children needed a place in which to keep them separate. We planned a box which should hold four cubic inches. After they had some knowledge of kinds of stones, we counted eleven varieties which we wanted to keep; namely, sandstone, limestone, quartz, granite, chert, pudding stone, marble, greenstone, sugar crystals, fool's gold (iron pyrites), and also shells. We made twelve small boxes and then a large one to hold these. The children experimented to see which was the best arrangement of the boxes, whether three by four, or two by six, or twelve by one. Each child chose his own way and made the pattern for this large box. When the pattern was completed, the children transfered it on to bristol board by means of carbon paper. Because of the strain upon the large box, strips of soft sheepskin were used to fasten the corners together, and instead of sewing or gluing these, brass-headed paper fasteners were used as more secure and more sightly. The total expense of each set of boxes was something like three cents.

The number relations and the geometrical conceptions which were applied in the construction of the boxes were so numerous and so well adapted to children of this age that they are enumerated below. They are: the making of a four-inch square (repeated twelve times); the idea that opposite sides of a rectangle are equal and parallel; the fact that two fours are eight (used in cutting binding-paper for the corners of each box); use of one inch, one-fourth inch, and one-eight inch (needed in making large box); conception of four cubic inches, one cubic inch, and the relation of numbers from one to twelve. The problems which arise are not only varied and well adapted, but are so frequently repeated as to furnish sufficient drill to fix them in mind.

This series of work upon the stones furnished a considerable amount of independent work. The younger group spent one half-hour daily for five weeks in the making of the small boxes.

The older children made a blank-book with alphabetically arranged pages like a dictionary. As soon as new words were gained in writing, a copy of them was put into this book for reference. The making of these books and the use of them occupied approximately six periods. The testing of the materials for lime and the making of the imitation fossils required two periods. One period was planned in which the children were to make the crystal forms in clay and color them as a partial record of the Field Museum trip, but time did not permit.

The following directions for the making of the small boxes were written to take the place of oral directions:

DIRECTIONS FOR MAKING SMALL STONE BOXES.

I.

Make a four-inch square.

Find the upper left corner.

Make a dot one inch from this corner on the left edge.

Make a dot one inch from this corner on the upper edge.

Make a dot one inch from the other corner on the upper edge.

Make a dot one inch from the other corner on the left edge.

Make a dot one inch from each corner on the right edge.

Make a dot one inch from each corner on the lower edge.

Find the dots that are opposite.

Draw a line between the opposite dots.

Cut out the square in each corner.

Lay your ruler on the lines that you see.
Then fold the four rectangles upward.

II.

The corners of the box are open.

Cut a piece of[3] binding-paper two inches long.

Fold the short edges of the binding-paper together.

Place the crease at the corner of the box.

Fasten the corners together with this binding-paper.

Written directions for work which is to be done furnish a valuable form of reading, in that reading appears to the child in its legitimate function, namely, telling something that he needs or wants to know — quite different from that well-known type: "This is a cow. Do you see the cow? I see the cow;" and different, too, in its appeal from some less obviously empty remarks of little more value or interest to a group of intelligent children, which are nevertheless to be found in some magnificently illustrated and modern first readers. In the second place, the reading of directions is valuable because it demands clear imaging in order that the work may be done. It has just the value which it claimed for the well-known "Action Sentences," with the added virtue that this thing needs to be done. It is a part of a reasonable plan which the child has in mind.

This particular subject offers abundant material for reading and of a nature particularly suitable for little children. In any subject in which the same process is repeated many times, or where one phenomenon is seen again and again, or where a means of classification is used frequently, the very repetition of the acts themselves causes a repetition of statement, hence a small vocabulary of often recurring words. If the repetition of words necessary in the beginnings of reading may be brought about by the

[3] The corners were fastened by passe-partout paper, which may be gotten at any picture-framing establishment.

recurrence of a result seen from a new standpoint each time, the drill becomes of great value.

The foregoing lessons have been reported in some detail only with the hope of illustrating some principles which seem important as underlying method, namely, that children shall work upon a subject of genuine interest to them: that this subject shall have permanent value as educative material; that each child shall have an opportunity to work independently; that the problems of reading, writing, and number shall arise from the actual needs of the work; and that this subject shall in some way serve to make this group of children more closely in touch with some other group in the school community.

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Stories for children: Flora J. Cooke, "The Story of the Pudding Stone" and "Sisyphus," from *Nature Myths and Stories for Little Children;* "The Donkey and the Salt," Æsop's *Fables;* Frank Dempster Sherman, "Wizard Frost."

GARDEN WORK IN THE FIFTH GRADE OF THE UNIVERSITY ELEMENTARY SCHOOL.

MARY M. STEAGALL.

In the spring the garden became the center of organization of the science work. The feeling that the sap was again rising in the veins of all nature gave rise to an innate longing to help nature into activity and beauty again, the desire to plant seeds and to watch their growth.

In early April the garden plot was surveyed by the seventh-grade children. The portion allotted to the fifth grade was a rectangle fifty feet east and west by fifteen north and south. With tape and rule the children verified the measurements of the seventh grade and began to plan the work. Many problems confronted them. As it was still too cool to begin the outdoor work, they devoted themselves to solving some of them in the laboratory.

The garden was selected on an untried area. Was the soil rich, or would it need fertilizing? Of what was it composed? The first question was practically answered by taking some of the soil into the house and testing the growth of plants in it with the growth of similar plants in rich and in poor soils.

The children did not know what made the soil rich or poor, did not know the soil constituents. They could see the stones, gravel, and sand. They were anxious to test it for carbonate of lime, but did not know how it was made nor what the real body of it was. They suggested a coarse sieve for the pebbles and stones, and a finer one for the gravelly sand. They could see the sand that would pass through their fine sieve, but did not know how to separate it from the "dirt," as they called the clay.

They decided to take a kilogram of soil and separate it into as many parts as possible, and find the part that each made of the whole. This amount furnished groups of two or three with about 200 grams each with which to work. After separating the stones and gravel, they boiled the remainder about twenty min-

utes; then by a gentle stream of water floated away the clay leaving the sand. The water in which the clay floated was kept, allowed to settle, and drained. The parts dried were put together and weighed. The weights furnished practice in comparison of numbers. The process gave individual work, but at the same time furnished one result so that class work might be done in the calculation.

The attempt to grow plants in these constituents taken separately, and to compare the results, failed through lack of that continual vigilance necessary to success in all experimental work.

The garden itself was then planned on paper. A plat of it was made to a scale one-eighth inch to the foot. Each child was allowed to plan the walks and the planting according to his best judgment, and from these was to be selected an approved plan. This involved both an ethical and a practical question. Utility required a walk all around the plat. Two groups of children necessitated equal divisions with similar conditions of light, soil, etc. The ethical required that the part should be planned in reference to the whole. The shade was on the east and south, but more particularly from the east. To divide it from west to east would give almost equal physical conditions, but separate the whole into two long narrow portions, and so sacrifice the pleasing shape. To divide it north and south would give beauty of form at the expense of equal conditions of sunlight. The children chose to subordinate their desire for equal rights to the pleasing whole. This proved, too, a real sacrifice to one group, as the western portion far excelled the eastern in rapidity of growth and rankness of production.

Further divisions must depend on the seeds planted. What to plant was determined by two conditions: the season and length of time during which we might have access to the garden, and the interest of the children in geography and history. The seasons were to be spring and fall. So for the spring harvest lettuce, radishes, and onions were chosen. Their interest in the Puritan Thanksgiving led them to choose corn and pumpkins for fall harvesting. They wished to plant cotton, tobacco, and rice, but the time was too short for these.

The kind of seeds then conditioned the garden arrangement. There was a desire for individual ownership and individual responsibility in each group, yet twenty-five or thirty separate portions would spoil the beauty of the whole. Here the ethical conflicted with the principle of individual ownership, and a happy agreement was reached in which the center was chosen (Fig. 1, *a*) for corn and pumpkins, leaving a one and one-half foot border for the earlier crop. The latter could lend itself to individual ownership and responsibility by merely stretching strings for boundaries.

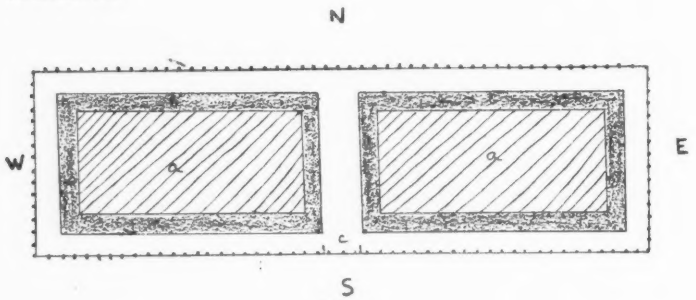


FIG. 1.

The actual measurement and division of the garden furnished the basis for a study of square measurement which was followed up in the Arithmetic work.

The staking off of a two-foot walk around the whole was an easy problem. The separation of the remainder into two equal parts by a three-foot walk was not difficult. The border was easily staked off, but the separation of this into equal portions for individual work was difficult. It was a long while before the children discovered that they must not count the corners twice.

When they knew what they were to plant, the conditions for germination and growth furnished the next problems. They began to think by this time that their soil was good. The amount of water necessary was not made the subject of a quantitative experiment, but by watering the window plants from day to day they learned to tell by the look of plant and soil when more moisture was needed.

That moisture was required for germination was not questioned, but how it made its way into the seed was an interesting problem. They worked this out by covering with paraffin the various parts of the seed and soaking to see what covering prevented the water's getting in.

The amount of sunlight and its effect were studied by planting two window boxes with like seeds under similar conditions, except that one box was kept in a north and the other in a south window. These were carefully watched, the difference in temperature of the two taken, and notes made from day to day of the differences in time of germination and growth. Colored sketches were made to show differences in color at sprouting, and again after exposure to light for about seven days.

Next the children investigated the depth at which the seeds should be planted. They first put the seeds into flower-pots, but such poor results were obtained, because of the unequal conditions in various cases, that window boxes were thought better. A part of manual-training time was given to making three or four boxes large enough to just fit the ledge, and deep enough to allow a four-inch planting. In these, seeds were planted at depths of one, two, three, and four inches. Careful notes were made of the depths, of the seeds which first germinated, and of those which had the better hold in the soil after growth began. They noted, too, that seeds planted an inch below the surface are likely before germination to become exposed on account of winds or beating rains.

The strength of the seedling for making its way out of the soil was questioned in some of the greater depths; so, to get an idea of its strength, we took a jar half full of peas and put them under germinating conditions. After a week they were found to fill the jar, pressing so tightly against each other as to make them irregular hexagons instead of spheres. They were packed in so closely that it was impossible to remove them except one at a time, and even then they must be cut to pieces first.

The raking, spading, measuring, and planting gave abundant outdoor exercise for weeks. For this work rakes and spades were provided in the following manner: Good oak lumber was pro-

vided in the manual-training room. Round handles were made about a yard long. For the rake (Fig. 2) a piece of lumber $1\frac{1}{2} \times 1 \times 12$ inches was taken. A hole was bored through the one-inch way for the inserting of the handle. Spike nails were then driven through the one-half inch way at distances of one inch apart, the middle one going through the handle and fastening it. The spade was made to correspond to Fig. 3. The broad part of this was about $9 \times 6\frac{1}{2}$ inches. It was made strong near

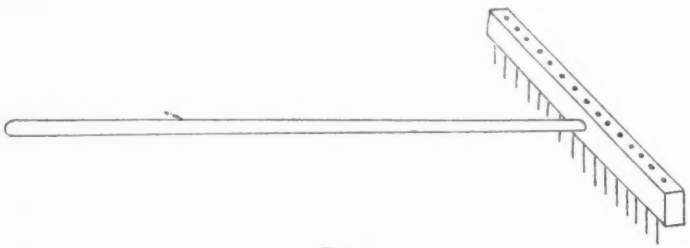


FIG. 2

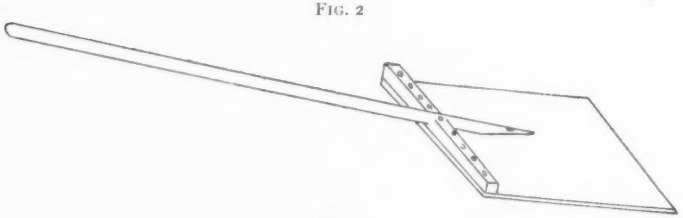


FIG. 3.

the handle by a cross-piece $1 \times 1 \times 6\frac{1}{2}$ inches which was fastened to it by bolts. The handle was given a slope by a diagonal sawing. It was bolted to the broad part, and passed through a groove in the stay to which it was bolted. Rakes so made are quite satisfactory. The spades are serviceable for the lighter work, if one or two iron spades are used in the tougher soil.

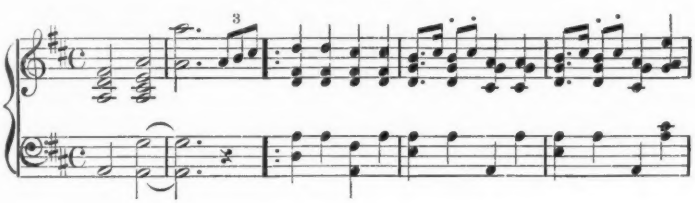
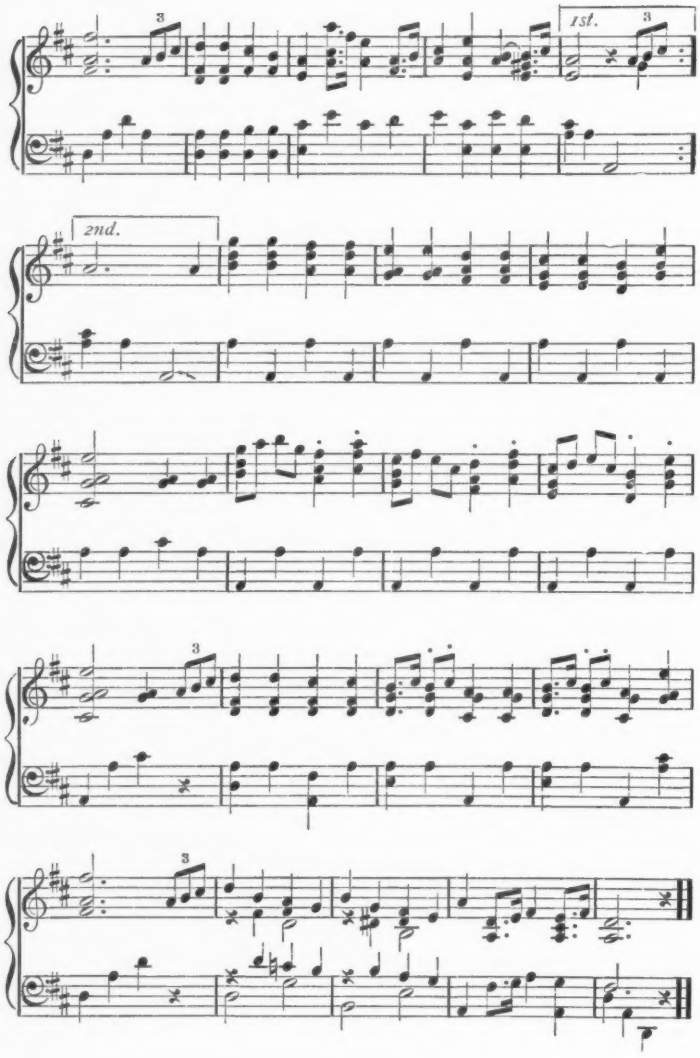
After the seeds had been planted, areas two feet square were staked off on a vacant lot not far away. Here the germination of the weeds of the district was studied. The children discovered how many different kinds grew on the area and made an estimate of the number of each kind. In this way they learned to recognize the form and to know the names of the common weeds of the

locality; so when the time for weeding arrived, they knew the weeds that were to be plucked out, and no mistakes were made by pulling up the seedlings.

The question arose as to which was better to plant, onion sets or onion seeds. One group planted the seeds, and the other the sets, with the result that the latter harvested its onions this spring, while the former will have a harvest in the autumn.

This account of the meager work in connection with the fifth-grade garden is illustrative of the fundamental importance and far-reaching consequences of intelligent garden work. It is in its nature physical, social, moral, ethical, extensive, and experimental. It is physical in that it gives motor response to the idea and gives the child an opportunity for being out of doors a while each day. It is fundamentally social, as no part of the school work can bring the children into freer and more commonsense relations socially. The garden party to which they invited their parents and friends gave them a chance to realize themselves as a functioning part of the social whole. It is moral in that it develops the ideas of respect for property, ownership, responsibility, and dignifies manual labor. It establishes the fundamental percepts of ethical ideas and in its principles extends to all the subjects of the curriculum. Here may be worked out not alone the fundamental principles of the natural and physical sciences, but it is the basis for mathematics, history, geography, drawing, and literature. Through its inductive experimentation it enlarges the imagery and establishes the basis of logical thinking.

MARCH OF THE LITTLE SANDALS.

MAY ROOT KERN.

1st.
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EDITORIAL NOTES.

The Elementary School Teacher

THE ELEMENTARY SCHOOL TEACHER is a lineal descendant of the *Cook County Normal School Envelope*. About the year 1892 a small printing outfit was installed in a basement room of the building occupied by the Cook County Normal School. The purpose of this was mainly to provide printed reading lessons and other material that the teachers desired to use in this form in their class-rooms. The children, stimulated by the desire to express their own ideas, were taught to write from a perfectly legitimate and natural motive. But their reading lessons found in the ordinary text-books bore no such organic relation to their thinking. The printing-press was therefore called into use with a view to placing in the hands of the pupils printed copies of their own stories which grew directly out of their observations. Still further, it gave the teachers opportunity to adapt stories and other descriptions to any particular subject in hand, and thus to relate reading much closer to the pupil's thinking than it was possible to do with text-books alone. The teachers also made use of the press in the preparation of outlines which gave a forecast of their plans for teaching; they used it, too, in summarizing what had already been done. As a stimulus and a means to study, this work was invaluable to the teacher and to the school as a whole.

Presently there grew up a considerable demand for these papers from teachers in different parts of the country. No attempt was made to bind the leaflets, or to arrange them in any particular order; they were simply put up in a large envelope each month, and sent to those who asked for them. The work was continued in this way until June, 1899, when Colonel Parker left the Normal School. These leaflets, which form several volumes of considerable size (no longer to be obtained), give an interesting insight into the workings of the school during that period.

When the Chicago Institute opened in 1900, the publication was resumed under the name of the *Course of Study*. In general, the same plan was pursued, but under the editorship of Mrs. Marion Foster Washburne the matter was given coherent arrangement, and each month the work was bound in magazine form. For two years this plan was followed, there being published in this period two volumes of about nine hundred pages each, which give a detailed view of the school at work.

In 1902, when the Elementary School of the Chicago Institute and the Laboratory School were united, the name of the publication was changed to its present form, and its character was considerably modified. Contributions from teachers and others not connected with the school were received, and the plan of printing outlines and lessons in detail was largely abandoned.

Once more the editorship has changed hands. Those who have assumed the duties feel deeply the responsibilities of the position, and they are planning to leave nothing undone that will enhance the value of the journal to those who are interested in educational problems. The aim will be to combine, as far as practicable, the best features of both plans that have been pursued heretofore. The University Elementary School is, frankly, an experimental school, in the best sense. It is difficult to conceive of a good school being anything else. When, therefore, the teachers of this school develop some piece of work with their pupils that seems to possess merit, it is proposed to give others the benefit of it, as far as possible, in the pages of this journal. The matter so presented will vary greatly in form, because it will come from those who have different points of view; it will never be offered as a piece of perfection, nor as a model to be copied, but rather as a suggestion which will enable another to do something better. No one need wait for perfection, but everybody has a right to expect growth; and it is the latter that the ELEMENTARY SCHOOL TEACHER will seek to encourage. It will therefore be ready to present to its readers the work of all teachers that has been done in a true student spirit and with a view to making the lives of children better.

The journal continues the work, already so well begun by

those who have founded and maintained it, with strong assurances of the cordial co-operation of the teachers of the School of Education, of The Francis W. Parker School, and of many others throughout the country. With such support it is believed that the ELEMENTARY SCHOOL TEACHER will continue to be an influential factor in the educational movement of its time.

Dedication of The School of Education

THE most important event in the history of the School of Education since its founding was the dedication of its buildings, on the thirteenth and fourteenth of last May. The University of Chicago made this event the occasion for inaugurating a regular annual conference on topics relating to elementary education, which corresponds to the conference on secondary work that is held in the autumn. The program covered two days, and it included departmental conferences on "The Training of Teachers," "The Arts, Music, and Dramatic Art," "History and English," "Science, Geography, and Mathematics," and "The Library and Museum." There were also two general meetings; one of these was devoted to the subject of "Manual Training," and the other one to the formal dedicatory exercises of Emmons Blaine Hall. The conferences were all largely attended and the papers and addresses were of such exceptional character that the ELEMENTARY SCHOOL TEACHER will publish a number of them during the year. The addresses by Dr. Nicholas Murray Butler, Mrs. Emmons Blaine, and Dr. Ernest F. Fenollosa appear in this issue.

Constructive Work.

IN manual training of all kinds, as with all other school work, the most important point for the teacher to consider is the motive. Constructive work at present, generally speaking, bears about the same relation to hand-work of the highest educative value that the old-time object-lessons bore to true nature-study. Object-lessons were introduced for the purpose of awakening and training the senses that slumbered and slept through the book régime of the schools. It was supposed, at first, that almost any object would serve the purpose. Later it was discovered that any attempt at sense-training which does not take into account the whole mind is vanity; it was further found out that the first demand of the

mind is for motive. Without a clearly defined and thoroughly understood motive, it always refuses to give its best. And this is as true for the little child as it is for the adult.

Manual training came into the schools as an attempt to resuscitate and train the motor activities of the pupils that were all but atrophied through lack of use. The pupils were set to cutting and carving on the theory that any kind of movement would serve. But teachers are learning that one muscular movement directed toward a worthy end that is thoroughly appreciated is worth a thousand of the same kind that have no soul behind them. That is, that physical training, the development of the motor activities, is as much a matter of mind as it is of body. It is a matter of both, one and inseparable. And, again, the first demand of the mind is for motive.

The purpose must be direct. In using a saw on a piece of timber the end is not to grow muscle, nor is it to develop character: *it is to cut wood.* If, when cut, it serves no purpose that is thoroughly appreciated, then the educative value of the work is of low grade. Nobody but a sick man or a child under compulsion ever goes through bodily motions, *simply* for the purpose of building up his body; just as nobody but a moral degenerate would go about hunting for opportunities to be honest simply for the purpose of developing in himself a fine moral character. Agassiz did not study because he desired to develop himself mentally, but because he wanted to know more about fishes. Newton did not sit up nights simply to acquire mathematical skill, but to find out something about the heavenly bodies. To fix the attention of the pupil upon himself, by setting up the motive of self-development or skill, is to train in him an insufferable egotism as certainly as though we perpetually praised his neckties and his curls.

The true end, the end which alone can inspire to healthy action, is to be found only in the purpose which the object can serve when it is completed. The object should be worth something because it can do something that somebody would like to have done. Apply this test, and it will rule out much of the handwork that now exists merely because it is fantastic and novel. Train the pupil to apply this test to his work and then do not

worry about the development of his motor activities or his moral character. W. S. J.

Summer Schools for Teachers

THERE is no better place for feeling the educational pulse of the country than at one of its great summer schools for teachers. Here people are gathered from California to Maine, and when classes permit of free discussion the school becomes a kind of clearing-house for opinion, and it is remarkable to note the general trend in the same direction.

One thing that strikes the observer with wonder and admiration is the mere fact that this class of workers whose toil draws so heavily upon vitality should still find strength left for vacation work. It testifies to two things: first, to the vital hold which members of the teaching profession have upon their problems; second, to the pressing nature of these problems themselves. The question has been asked repeatedly of teachers: "Are you not trying to do too much in vacation?" Again and again the same answer comes: "Oh no! It rests me to study. It is so different from teaching, and it is such a satisfaction to feel that one is getting that which will make all next year's teaching better and easier." Surely such an attitude augurs well for the schools represented in our numerous summer sessions that normal schools, colleges, and universities have been conducting. Nowhere is this activity more evident than among the teachers of the South. Energy, enthusiasm, and elasticity mark the southern student.

The trend toward activities which involve positive contact with things and processes is a sign of the times. Those studies which demand laboratory methods, or constructive, or executive power, are in the lead. This may seem at first thought to be a passing fashion, but a closer following of classes convinces one that the selection has been made under conviction born of actual experience of the needs of children. One young woman from a southwestern state said: "Well, no one from our town was doing anything definite to find out about these modern methods, and I just determined I would; for certainly our schools do need something down there. And now that I have come I know better what I want and what we need." It may be added that, as a result of the energy of this teacher and the generosity of a mem-

ber of the school board of her town, materials have been provided that will greatly increase the facilities of their primary work; a first-grade room has been furnished with chairs and tables in place of the solitary desks, so that the children, barely beyond kindergarten age, may have group work and games. As an evidence that this teacher was not standing alone in this desire for progress, we cannot forbear to add that her school board paid her tuition at the summer school. Who knows how many such histories may lie behind the great wave of educational reform?

B. P.

BOOK REVIEWS.

Hull's Elements of Algebra for Beginners. By GEORGE W. HULL. New York, Cincinnati, and Chicago: American Book Co., 1904. Pp. 159. $0.50.

A GOOD book, though we see no reason why it should have been written, as the market is full of just as good. In our judgment, the giving of rules before processes and of definitions before the thing to be defined or the process under the rule is thoroughly understood, is faulty.

The author says in his preface: "We have made the equation the most prominent idea of each chapter." And yet, nearly 75 per cent. of the equations in the book are given for solution. It would seem that if the equation is so important (and it is), the originating of it is far more important than its solution. The child has simply to recall certain facts already learned by rote to work an equation made for him. On the other hand, if he be given the conditions, let them be ever so simple, he has not only to recall the facts as before; he has also to draw an inference and through this inference form his own equation, which becomes a part of himself, thus enhancing its value and causing its solution to be far more pleasurable. This, however, is a fault found in many elementary algebras. The author has simply followed the beaten path.

WILLIAM M. GIFFIN.

Educational Music Course. Teachers' Edition for Elementary Grades. By JAMES M. MCLAUGHLIN AND W. W. GILCHRIST. Boston: Ginn & Co. Pp. 271. $1.25.

THIS book is a teacher's manual designed to supplement the *New First Reader of the Educational Music Course* by furnishing excellent piano accompaniments for the melodies given in the pupil's *Reader*. That harmony greatly enhances the value of songs is undeniable, and where a piano is even occasionally available, it should be employed. In all school assembly-rooms a piano will be found, and, in default of the schoolroom piano, this should be used as often as practicable for the sake of the ear-training which the presence of good harmony affords. This book contains a collection of good rote-songs for elementary grades, together with practical drills for developing the child's voice; also, in connection with songs for sight-reading, carefully graded exercises in time and interval. In an appendix, songs by great writers adapted and arranged for children's use are given. While it is axiomatic that the child should be given "the best," it is a question whether it be wise to discount the future by injuring the great songs written for adults through divorcing them from their virile texts and resetting them to neutral-tinted verses, and, furthermore, pruning them, or cutting out those integral portions which furnish a contrast and background for the simpler melodic gem.

M. R. KERN.

Schücking's Die drei Freier. Edited by OTTO HELLER. Boston: Ginn & Co. Pp. xxiii + 81. $0.30.

THIS is the first time this thrilling story has been printed out of Germany, and the first time it has been edited. The copious notes deal for the most part with moot points and other difficulties of German grammar, while the archaisms of Schücking's style are separately considered in a chapter of the Introduction. *Die drei Freier* is adapted to the needs of students who have spent about one year and a half on their German, and will be found to furnish excellent sight-reading for more advanced students.

Elementary German for Sight Translation. By RICHARD CLYDE FORD. Boston: Ginn & Co. Pp. 43. $0.25.

THIS is a text planned for the first two years of high-school and college work, to be used as soon as classes are able to take up easy reading. Although the text has been prepared primarily for sight translation, nevertheless a few brief foot-notes have been introduced, thus making it especially helpful to those who may wish to use it as a supplementary text in prepared reading and conversation. The spelling followed throughout is the latest official orthography (decree 1902), and a few of the exercises are printed in Roman in order to familiarize the reader with both styles of German printing.

Baldwin's Spelling by Grades. New York, Cincinnati, and Chicago: American Book Co. Pp. 128. $0.20.

CONTAINS the words used in the well-known series of Baldwin's readers, arranged in the order of their occurrence. The gradation and arrangement of the book, however, are such as to adapt it for practical use in all elementary schools, without regard to the series of readers. The words are arranged in numbered groups, each group being sufficient for a single lesson. Words of special difficulty, as well as most of the proper names, are pronounced in review lists. The meanings of all proper names and of the difficult or uncommon words are given. These definitions, and the marking of pronunciation, are especially thorough and satisfactory.

Dumas' Les trois mousquetaires. Edited by C. FONTAINE, New York, Cincinnati, and Chicago: American Book Co. Pp. 208. $0.60.

THE adventures of Athos, Porthos, Aramis, and D'Artagnan, which have delighted so many thousands of older readers, are here presented in suitable form for class reading. The editor has skilfully abridged the lengthy novel, but has left the thread of the story unbroken, so that this brilliant work of Dumas may prove interesting and useful to both teachers and pupils. The omitted parts are summarized in brief English synopses, so that the reader will be able to follow the plot throughout. Notes are added to afford all needed help, and the vocabulary is complete.